

Name: _____ Period: _____ Date: _____

Rational Exponents and Radicals Exit Quiz

Evaluate the following expressions.

1. $\sqrt[8]{x^4}$

2. $\sqrt[4]{16x^{20}}$

3. $\sqrt[5]{-32x^5}$

4. $\sqrt[4]{16x^5}$

5. $\sqrt[3]{\frac{3}{8x^{24}}}$

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Answer:

Evaluate the following expressions.

$$1. \quad \sqrt[8]{x^4} = \sqrt{\sqrt[4]{x^4}} = \sqrt{x}$$

$$2. \quad \sqrt[4]{16x^{20}} = (2^4 x^{20})^{1/4} = 2x^5$$

$$3. \quad \sqrt[5]{-32x^5} = (-2^5 x^5)^{1/5} = -2x$$

$$4. \quad \sqrt[4]{16x^5} = (2^4)^{1/4} (x^4 \times x)^{1/4} = 2x\sqrt[4]{x}$$

$$5. \quad \sqrt[3]{\frac{3}{8x^{24}}} = \frac{(3)^{1/3}}{(2^3 x^{24})^{1/3}} = \frac{\sqrt[3]{3}}{2x^8}$$